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Published every Wednesday, by

THOMAS G. NEWMAN,
EDITOR AND PROPRIETOR.

Bee-Keepers' Week!

This sounds rather new and somewhat novel. Perhaps it is not yet set down in the Calendar, to be observed as a feast, but it is to be observed at the great Southern Exposition at Louisville, Ky., as we see by the Louisville Courier-Journal of July 8, a copy of which has been sent to us by Mr. W. Hamilton, of that city, with this paragraph marked:

While every day during the Exposition, from Aug. 1 until the closing, will be full of the most interesting features, certain days have been set apart for special attractions, which will be of direct interest to a large number of people. The programme on the opening day will be very elaborate; business throughout the city will be suspended during the day, and the Exposition will be opened by the President of the United States. On Tuesday, Aug. 28, begins a week to be known as Bee-Keepers' Week and Horticultural Week. Prizes will be awarded, and arrangements have been made by the Kentucky Bee Association to have many hives of many kinds of bees within the grounds.

The Kentucky apiarists are evidently at work in the right direction, and we would encourage them by every means in our power to make thorough work of it. It will be remembered that President Demaree issued a card to bee-keepers, which we published on page 339 of the BEE JOURNAL for July 4, and we would here call especial attention to it.

Every bee-keeper within a reasonable distance of the Exposition, whether in Kentucky, Indiana, Ohio, Illinois, Missouri, Arkansas or Tennessee, should see to it that there is a grand display of bees and honey, and

everything to be made of honey, and that the "Bee-Keepers' Week" may be made notorious by the magnitude of its exhibit. There will be plenty of honey. This is "a year of plenty," the like of which has not been known for a very long time! Let the display then be commensurate with the honey harvest, and it will advertise the honey crop far and wide, and cause a corresponding demand for the sweet product.

When that 180 tons of comb honey was sent to England, and was displayed like a huge mountain at the "British Agricultural Fair," with the words "AMERICAN HONEY" painted in large letters on canvas at its top, with American flags arranged in graceful folds on each of its sides, the people of that "beautiful garden spot," opened their eyes and gazed with admiration! The result was that ton after ton of it was quickly sold, and it graced the tables of Her Majesty, Queen Victoria, and aristocracy and nobility vied with each other in appropriating its sweetness, being captivated by its beauty and the magnitude of its display. It is safe to assert that now the demand for honey in Great Britain is ten fold greater than ever it was before that display was made, and year by year this demand increases. Why may not this teach us a lesson? for the Bee and Honey shows of Europe now lead us, both in their magnitude and educational results.

The year 1883 will long be remembered as America's Great Honey Year, let it also be recorded as the year of its Grand Honey Shows—the Year of Jubilee for the thousands who are being poisoned by the glucose frauds and adulterated sweets.

Let the "Bee-Keepers' Week" inaugurate a new era—when "Feasts" may be spread at hundreds of Fairs, all over the country, inviting all mankind to come and partake of God-given sweets, distilled in Nature's

own laboratory, and gathered under heaven's smiles by the "blessed bees," both for man's sustenance as food, and for its health-giving properties as medicines.

Let the invitation be given to all—Let the apiarist and exhibitor say, Come! Let him that heareth say, Come! and whosoever will, let him Come, and partake of the Honey Feast—it will create a sweet disposition, and produce a bright intellect!

The Balsams as Honey Producers.

Dr. L. Knorr, Savanna, Ga., has sent us a copy of the Rhode Island Wochenblatt of June 16, in which it is stated that in Germany they are very enthusiastic about a new honey-producer—the giant balsam—and that it is being cultivated extensively near Berlin for the bees to work on. The balsams of America yield honey, but we do not think they are as good honey-producers as many others. Mr. A. A. Fradenburg stated at the National Convention held in Cincinnati, Ohio, in 1880, that he had cultivated them for that purpose, and they yielded honey well.

The balsam poplar, and the variety known as "balm of gilead" yield propolis also, in good quantities.

Labors of the Bee.—As a sample of the labors of the bee in gathering honey, an exchange remarks as follows:

The bee has long been a type of the industrious worker, but there are few people who know how much labor the sweet hoard of the hive represents. Each head of clover contains about 60 distinct flower tubes, each of which contains a portion of sugar not exceeding the five-hundredth part of a grain. The proboscis of the bee must, therefore, be inserted into 500 clover tubes before one grain of sugar can be obtained. There are 7,000 grains in a pound, and, as honey contains three-fourths of its weight of dry sugar, each pound of honey represents 2,500,000 clover tubes sucked by bees.

Bee and Honey Show in London.

The London *Journal of Horticulture*, speaking of the annual exhibition of the Bee-Keepers' Association, to be held July 5 to 9, 1883, says:

The date of the show has been fixed nearly a month earlier than usual, in order to give those who are staying in London for the season an opportunity of visiting this interesting and instructive exhibition; no better date could have been selected. The present season has been one of the best on record for the production of early honey, the warm sunshine of the past few weeks tending to the secretion of honey, and large quantities have been gathered by the bees from the fruit blossoms, early clover, and other sources. Unusually large entries have been made in the honey classes, and the present exhibition will fully illustrate the advantages to be derived from keeping bees in an intelligent and humane manner.

The old-fashioned bee-keeper who lets his bees look after themselves until the months of August or September, and then "takes 'em up," consigning the industrious bees to the brimstone pit, will look on with wonder and astonishment at the great display of comb honey in one and two-pound sections, and extracted honey in neatly labelled glass jars, the whole of which has been secured by the third week in June, or even earlier in some districts. The exhibition will contain an interesting collection of bees confined in observatory hives. No bees will be at large; the most timid may, therefore, visit the show in perfect safety. No pains have been spared by the committee to make the proceedings of a thoroughly interesting character. Practical instruction in the art of bee-keeping will be given at intervals on each day, the modern methods of managing bees during the spring, summer, and winter months being fully explained by the most advanced bee-masters. Special addresses will be given by Frank R. Cheshire, Esq., on Saturday, July 7, on "Structure of the bee in relation to fertilization," and on Monday, July 9, on "Bees as hybridizers and fruit-producers, or the dependence of orchard crops upon bees." These addresses will be given at 4 p. m. each day.

The new two cent rate of postage for letters goes into effect on October 1. Three cent postage stamps will then be but little used. For all fractions of a dollar sent to us hereafter we should prefer either one-cent, or else five or ten-cent postage stamps. Do not send coins in any letter.

Do not let your numbers of the BEE JOURNAL for 1883 be lost. The best way to preserve them is to procure a binder and put them in. They are very valuable for reference.

Swarms Selecting a Location.

In proof that the bees do select a place in advance, by sending out "scouts," Mr. Geo. Yeomans, Shedfield, England, gives the following in the *British Bee Journal*:

In an outhouse, hid under trees and amidst other buildings, I had a few days ago put a number of old straw skeps, one of which contained old comb. Seeing the bees visiting this house, I put the old hive with the comb near the window, and on the next day, June 8, a swarm took possession of it.

The *Grange Bulletin* says: "One of our patrons has taken 220 pounds of nice extracted honey from 6 colonies of bees in one day; and still they have all their combs returned and are refilling them with a fresh supply." This is only a small straw—but "straws show which way the wind blows."

The White County, Arkansas Fair will be held at Judsonia, Oct. 10 to 12, 1883, as we are informed by Mr. C. M. Forbes, the secretary. We hope that a good exhibition of honey will be made by the bee-keepers of that section.

Rough on Vermont.

We have sung the praises of old Vermont for many a year, but this rather disheartens us. Editor Cheever of the *New England Farmer*, has just been buying "pure Vermont maple sugar," and finds it to be chiefly glucose. We did not suppose that Chicago influences had extended so far and so rapidly. We have known Vermont farmers who put a false 2 inch birch plank bottom inside their butter tubs; one who accidentally let drop a 2 pound brook cobblestone into the firkin as the butter was being packed; of one whose "artful wicked" hired man put water in the milk can before starting for the cheese factory; of one whose "hired girl" carelessly turned over the salt box upon the butter worker; of another who forgot and skimmed the milk before sending it to the factory; but that the old State of Ethan Allan, Brigham Young, W. Pitt Kellogg and Stephen A. Douglass should put glucose into its sugar is too much for us. If Vermont maple sugar is to be diluted at home, the world is about done for. Vermonters, shame on you.—*Farmers' Review*.

Sample Copies of the AMERICAN BEE JOURNAL will be sent free to any person. Any one intending to get up a club can have sample copies sent to the persons they desire to interview, by sending the names to this office.

The National Convention.

The National Bee-Keepers' Association, will hold its Annual Convention in the City Hall and Council Chamber in the city of Toronto, on Tuesday, Wednesday and Thursday, the 18th, 19th and 20th days of September, during the second week of Canada's Great Fair. All the railroads in Canada will issue tickets during this week, good to return, up to Saturday night 22d, at single fare for the round trip. Special excursion rates will be arranged from various parts of the United States, of which due notice will be given. Those who intend being present may be kept posted on the latest excursion rates, etc., by addressing me, and also that I may arrange hotel accommodation. Private lodgings will, if possible, be secured for those who desire it, and every effort will be made to make everybody comfortable. A grand meeting is anticipated.

D. A. JONES, President.

Honey and Beeswax Market.

OFFICE OF AMERICAN BEE JOURNAL,
Monday, 10 a. m., July 16, 1883.

The following are the latest quotations for honey and beeswax received up to this hour:

CINCINNATI.

HONEY.—Extract, honey has commenced to come in freely, and a large crop is reported from all quarters. The demand is very good, and keeps pace with the arrivals. For choice extracted honey I pay 7@10c; the latter price for choice clover. I have received several nice lots of comb honey, for which we paid 15@16c on arrival.

BEESWAX.—Arrivals of beeswax are plentiful. We pay 32c. for a good article on arrival.

CHAS. F. MUTH.

NEW YORK.

HONEY.—Best clover in 1-lb. sections (no glass) 20@21c; in 2-lb. sections (glass) 18@20c. Fair quality, 1 and 2-lb. sections, 16@17c. Extracted, white, in small barrels, 10@11c; buckwheat, 8@9c. BEESWAX.—Is more plentiful. Prime yellow sells at 36@40c.

H. K. & F. B. THURBER & Co.

CHICAGO.

HONEY.—The demand for extracted is good, and the market bare of all unfermented honey. Prices range from 8c. to 10c. Comb remains lifeless and will until the new crop comes, or until August. Sales of comb are being made at 8c. to 15c.

BEESWAX.—30@35c.

R. A. BURNETT, 161 South Water St.

SAN FRANCISCO.

HONEY.—New extracted is arriving freely—selling for 7 and 8 cts. New comb coming forward slowly; extra white, 16c.

BEESWAX.—No beeswax in the market.

STEARNS & SMITH, 435 Front Street.

ST. LOUIS.

HONEY.—Some new comb jobbing at 14c, but old do. nominal. Only a few barrels of extracted and strained sold within quotations—31@47c.

BEESWAX.—Sold irregularly from 32@34c—mainly at 32@33c.

W. T. ANDERSON & Co., 104 N. 3d Street.

CLEVELAND.

HONEY.—There is a moderate sale for best white 1-lb. sections at 18c, occasionally 19c, but 2 lbs. are not called for. Extracted has no sale at all.

BEESWAX.—Not offering.

A. C. KENDEL, 115 Ontario Street.

BOSTON.

HONEY.—Our market is fairly active. We quote: 1/2 lb. sections at 30c; 1 lb. sections, 22@23c; 2 lb. sections, 20@22c. Extracted, 10c. per lb. Good lots of extracted are wanted in kegs or barrels.

BEESWAX.—Our supply is gone; we have none to quote.

CROCKER & BLAKE, 57 Chatham Street.

CORRESPONDENCE

For the American Bee Journal.

A Word of Explanation.

G. M. DOOLITTLE.

By No. 26, of BEE JOURNAL, which is just at hand, I see that the editor thinks I got things a little mixed when I wrote on the "Langstroth frame." I plead guilty to being a poor penman, and, perhaps, was rather unhappy in my expressions, which, together with some errors of the typo, does make the article found on page 318, read somewhat curiously. However, I think the careful reader will see by the last paragraph, taken in connection with the explanation regarding frames in the forepart of the article, what was meant. Perhaps I should have said a frame $11\frac{1}{4} \times 11\frac{1}{4}$ every time when I used the words "Gallup frame," and a frame $17\frac{1}{2} \times 9\frac{1}{2}$ when I spoke of what A. I. Root calls the "standard Langstroth frame," but I feared using so many figures would tend to confuse, and so fell into a worse blunder, perhaps, by using the vernacular of nearly all who write on the subject. In short, I wished to say just this: That nearly all the frames in use in America today were Langstroth frames, and that I wished to express my gratitude to L. L. Langstroth for giving us a practical frame; that from the present outlook I did not believe it possible to make any one frame a standard, no matter how desirable, and that nearly all the frames now before the public were practically good enough; that it was particularly noticeable that those desiring a standard frame were using a frame $17\frac{1}{2} \times 9\frac{1}{2}$, while those using frames of other dimensions were satisfied to let others use whatever frame they desired. Again, that because Doolittle, using a frame $11\frac{1}{4} \times 11\frac{1}{4}$, had been surpassed as to yields of honey by "lots" using the $17\frac{1}{2} \times 9\frac{1}{2}$ frame, while L. C. Root, using a frame $19\frac{1}{2} \times 11$, had surpassed the "lots," did not help Mr. Porter any in concluding that a frame $17\frac{1}{2} \times 9\frac{1}{2}$ was the best of any, and that it should be adopted by all; that because Doolittle, using a frame $11\frac{1}{4} \times 11\frac{1}{4}$, winters bees poorly, while a certain man, using a frame $19\frac{1}{2} \times 11$, winters his bees every time, does not help Mr. Pond's assertion that a frame $17\frac{1}{2} \times 9\frac{1}{2}$ is the best for wintering. Lastly, that the pushing of a frame $17\frac{1}{2} \times 9\frac{1}{2}$ by A. I. Root, in *Gleanings*, and the preference shown by the editor of the BEE JOURNAL for said size of frame, was what had caused it to be used more largely than all others (if such was the case), rather than that it was more meritorious than other forms of the Langstroth frames; that had Prof. Cook edited *Gleanings*, and L. C. Root the BEE JOURNAL, and been as strenuous for their respective size of frames as had A. I. Root for what he terms the Lang-

stroth ($17\frac{1}{2} \times 9\frac{1}{2}$), we should have seen a different state of affairs.

In conclusion, that I was "willing that every one (not "any one," as the typo has it) should use a frame $17\frac{1}{2} \times 9\frac{1}{2}$ if they so desire, but I would like the advocates of such a frame to let the people know the whole truth regarding what caused the state of affairs which now exist.

Borodino, N. Y.

[Of course, we well knew what Mr. D. meant, but in a friendly way called attention to his unfortunate manner of expressing it. Now it is quite explicit.—ED.]

For the American Bee Journal.

Southwestern Iowa Convention.

The Southwestern Iowa Bee-Keepers' Association, met at McPherson Bros. law office, Clarinda, Iowa, June 21, 1888. A number of members were present. Prof. J. L. Strong was in the chair.

Mr. E. Kretschmer gave a short address, and exhibited the following implements: Simplicity hive honey knife and smoker.

Mr. Strong exhibited comb foundation and Bingham smoker.

Many questions were then propounded and answered, after which an election for officers was held, which resulted as follows: President, J. L. Strong; Secretary, R. C. Aiken; and 8 new members were enrolled.

It was voted to hold the next meeting at Red Oak, Iowa, on May 29, on the fair grounds—that being the second day of the fair.

Each member was requested to take such apiarian implements as he may have, and place them on exhibition at the fair.

R. C. AIKEN, Sec.

J. L. STRONG, Pres.

American Apiculturist.

Honey Bees and Horticulture.

PROF. A. J. COOK.

"If some of our fruit-growers were to write upon this subject, they would place as the title—Bees *versus* Horticulture. Some of our ablest entomologists are persuaded that bees do not always play the role of friends to the pomologist.

What I am to say of bees would apply equally well, in some cases, to many other sweet-loving insects, as the wild bees, the wasps, and many of the dipterous, or two-winged flies; only as early in the season other insects are rare, while the honey bees, though less numerous than they are later in the season, are comparatively abundant, even early in the spring months.

My first proposition is, that plants only secrete nectar that they may attract insects. And why this need of insect visits? It is that they may serve as "marriage priests" in the work of fertilizing the plants. As is well known, many plants, like the willows and the chestnuts, are dioecious. The male element, the pollen,

and the female element, the ovules, are on different plants, and so the plants are absolutely dependent upon insects for fertilization. The pollen attracts the insects to the staminate flowers, while the nectar entices them to visit the pistillate bloom. Some varieties of the strawberries are so nearly dioecious that this luscious fruit, of which good old Isaac Walton wrote, "Doubtless God might have made a better fruit than the strawberry, but doubtless God never did," would in case of some varieties be barren except for the kindly ministrations of insects. Other plants are monoeceous—that is, stamens and pistils are on the same flower, but the structural peculiarities are such that unless insects were wooed by the coveted nectar, fertilization would be impossible. Many of the plants with irregular flowers, like the Orchids, as Darwin has so admirably shown, are thus entirely dependent upon insects to effect fructification. In many of these plants the structural modifications, which insure fertilization consequent upon the visits of insects, are wonderfully interesting. These have been dwelt upon at length by Darwin, Gray, Beal and others, and I will forbear to discuss them further.

But many of our flowers, which are so arranged that the pollen falls easily upon the stigma, like the clovers, squashes, and fruit blossoms, fail of full fruitage unless, forsooth, some insect bear the pollen of one flower to the pistil of another. As has been repeatedly demonstrated, if our fruit bloom or that of any of our cucurbitaceous plants be screened from insects the yield of seed and fruit will be but very partial. Prof. Beal and our students have tried some very interesting experiments of this kind with the red clover. All of the plants under observation were covered with gauze that the conditions might be uniform. Bumble bees were placed under the screens of half of these plants. The insects commenced at once to visit and sip nectar from the clover blossoms. In the fall the seeds of all the plants were counted, and those from the plants visited by the bumble bees were to those gathered from the plants which were shielded from all insect visits, as 236 : 5. Thus we see why the first crop of red clover is barren of seed, while the second crop, which comes of bloom visited freely by bumble bees, whose long tongues can reach down to the nectar at the bottom of the long flower tubes, is prolific of seed. This fact led to the importation of bumble bees from England to New Zealand and Australia two years since. There were no bumble bees in Australia and adjacent islands, and the red clover was found impotent to produce seed. When we have introduced *Apis dorsata* into our American apiaries, or when we have developed *Apis Americana*, with a tongue like that of *Bombus*, seven-sixteenths of an inch long, then we shall be able to raise seed from the first crop of red clover, as the honey bees, unlike the bumble bees, will be numerous enough early in the season to perform

the necessary fertilization. Alsike clover, a hybrid between the white and the red, has shorter flower tubes, which makes it a favorite with our honey bees, and so it gives a full crop of seed from the early blossoms.

In all these cases we have proof that Nature objects to close inter-breeding; and thus, through her laws, the nectar-secreting organs have been evolved, that insects might do the work of cross-fertilization. As in the case of animals, the bi-sexual or dioecious plants have been evolved from the hermaphroditic as a higher type; each sex being independent, more vital force can be expended on the sexual elements, and so the individual is the gainer.

It is sometimes contended by farmers that the visits of bees are detrimental to their crops. I have heard farmers say that they had known bees to destroy entirely their crop of buckwheat by injuring the blossoms. There is no basis of fact for this statement or opinion. Usually bees visit buckwheat bloom freely. If for any reason the seed fail, as from climatic condition and influence, it occasionally will, the bees are charged with the damage, though their whole work, as shown above, has been beneficial, and that only.

It is true, as I have personally observed, that species of our carpenter bees (*Xylocopa*) do pierce the flower tubes of the wild bergamont, and some of our cultivated flowers, with similar long corolla tubes, that they may gain access to the otherwise inaccessible nectar; the tubes once pierced and our honey bees avail themselves of the opportunity to secure some of the nectar. I have watched long and carefully, but never saw the honey bee making the incisions. As I have never heard of any one else who has seen them, I feel free to say that it is entirely unlikely that they are ever thus engaged.

My last proposition is, that though bees, in the dearth of nectar secretion, will sip the juices from crushed grapes and other similar fruits, they rarely ever, I think never, do so unless Nature, some other insect, or some higher animal, has first broken the skin. I have given to bees crushed grapes from which they would eagerly sip the juices, while other sound grapes on the same stem—even those like the Delaware, with tenderest skin, which were made to replace the bruised ones—were left entirely undisturbed. I have even shut bees up in an empty hive with grapes, which latter were safe, even though surrounded by so many hungry mouths. I have tried even a more crucial test, and have stopped the entrance of the hive with grapes, and yet the grapes were uninjured.

In most cases where bees disturb grapes, some bird or wasp has opened the door to such mischief by previously piercing the skin. Occasionally there is a year when an entire vineyard seems to be sucked dry by bees in a few hours. In such cases the fruit is always very ripe, the weather very hot, and the atmosphere very damp; when it is altogether

probable that the juice oozes from fine natural pores, and so lures the bees on to this Bacchanalian feast. I have never had an opportunity to prove this to be true, but from numerous reports I think it the solution of those dreaded onslaughts which have so often brought down severe denunciations upon the bees, and as bitter curses upon their owners.

Lansing, Mich.

For the American Bee Journal.

Essentials of the Coming Hive.

W. H. STEWART.

What to us appears to-day to be true, may to-morrow prove to be untrue. The assemblage of what we now consider to be general principles, deduced from experiment and observation on the subject of bee-culture, may, by some, be considered entitled to the name of pure science. No science is pure, however, unless based upon self-evident truths, as is the science of mathematics. I sometimes question whether the art of bee-culture has become sufficiently understood to be properly called a science.

If we say that two and two equal four, or that four pecks equal one bushel, we speak self-evident truths, backed up by pure mathematical science; but if we ask how many cubic inches are contained in a Wisconsin or New York bee hive, we find that no scientific or positive answer can be given. The reason that no answer can be given is, that no one has as yet been able to demonstrate practically that any one hive in use embodies all the advantages that are found in all the hives of various forms and sizes that are now or have been in use. Even if a hive could be shown to embody all the good points that are found in the many others, there is no certainty that it would not be found wanting in some respects.

The truth is that not a State in the Union has a hive that gives universal and full satisfaction to all bee-keepers in that State. A hive adequate to every demand of both bees and bee-keepers, every day of the year, and every year, would possess in itself self-evidence that it was constructed on pure scientific principles. When we get that kind of a hive, then every bee-keeper will be as well satisfied of its perfection as they now are that 2 and 2 equal 4, from the fact that that very application of the principle will demonstrate its truthfulness.

The Langstroth hive being shallow, the supers are nearer to the centre of the cluster of bees, and thus many conclude that the bees can be induced to work in the supers earlier in the season than in taller hives. Let us admit that this be true, and that we have thus gained one important point. We find on the other hand that the queen is much more apt to extend the breeding into the super than where tall brood-chambers are used. Also, that very little honey can be stored above the cluster for wintering, and this latter objection alone renders it

altogether unfit for out-door wintering.

If bees are in a tall and reasonably narrow hive, then nearly, or all their winter stores are found in the upper part of the hive, and during a long cold spell, the bees can easily, and do naturally move slowly upward to the top of the cluster to meet the warmer air, and are ever coming in connection with the lower portion of their stores, and can obtain plenty of food without being compelled to make any unnatural or hazardous movement. In low broad hives the stores must unavoidably be at the sides of the cluster, and when we have such a winter as the past, when for 50 to 100 days that bees could not leave the cluster, either downward or in a laterally direction without being chilled to death, they consume what is immediately above them, and then perish with hunger with plenty of food within a few inches of them on all sides.

It is my opinion that the main reason why bees wintered better in the old straw hive is, that on account of its peculiar pyramidal form, the most and best of the stores were in the upper part of the hive, and also, the hive being contracted on all sides alike, the warmer air was confined to the same point, and the bees could easily move about in the midst of plenty.

If a chaff hive could be invented that would embody this point, and the advantages for supers and movable combs in the brood-chamber, as found in the Langstroth, then we might, with propriety, talk about wintering on the summer stands; but broad, shallow brood-chambers with movable combs, either in chaff or straw, will ever fail as an out-door winter hive. Tall, narrow hives like the American, give bees a chance to store honey above the cluster to a greater extent than other frame hives in use; but the open spaces between the combs at the ends allows the warm air to escape laterally, and become dissipated throughout the hive, thus reducing the temperature in and immediately about the cluster. They are also unsafe for wintering on summer stands.

Again, many bee-keepers are of the opinion that the hive should be contracted in early spring, and are experimenting with various division-boards for that purpose. And then again, all the frame hives of which I have any knowledge are, in the months of June and July, found too small to give a prolific queen ample room for brooding. During the two last seasons, I have found hybrid queens using 18 and 20 combs, and each comb 12x12 inches.

Many are now talking of using perforated separators over the brood-chamber to confine the queen to the lower combs for the purpose of keeping the surplus free from brood. This proposition proves that the hives thus provided is considered to be incapable of satisfying the queen in the lower department in the height of the brooding season. And yet again, if it should finally be found most con-

venient and profitable to winter indoors, it is in such case most convenient to set the hives on top of each other, thus building up a wall of hives around the room, and at the same time it is often desirable to have the hive so constructed that we could handle any one, in providing for them without disturbing others immediately connected with the one being handled.

What shall we do? Shall we have a hive that embodies all desirable points, or will we plod along losing in winter what we can save in summer? Do not say that it cannot be done, but let each one strive to develop at least one good point. It seems that if other creatures can have a home that is adequate to all their wants, why not the honey bee?

A perfect hive must embody many good points, and we cannot expect to accomplish all in one day, or year perhaps, but we may approximate, and in doing so let us ever bear in mind that the following points must not be over-looked:

1. The brood-chamber must be easily adjusted to the size of the colony and wants of the queen at all seasons of the year.

2. It must be so that winter stores will be mostly in the upper portion of the hive, and above the cluster.

3. There must be ample top surface in summer for supers.

4. It should be adapted to out-door wintering if possible.

5. It should be constructed so that the bees can be handled at any time of the year.

6. Let the hive be not too complicated or expensive, but cheap, simple and compact.

Let each give their best thoughts through the AMERICAN BEE JOURNAL, and let the only strife be for the perfection of the coming hive, and ultimate success of bee-culture.

Orion, Wis.

For the American Bee Journal.

The Standard Frame.

W. H. HARMER.

I am much obliged to Mr. Hutchinson for his article on page 308; I am glad to hear of anybody adopting the Langstroth hive, and also to Mr. Heddon for his, on the next page. The want of a standard frame I am sure is felt by every busy honey-producer. I used to think the same as Mr. Hutchinson in regard to the necessity of the frame holding eight $4\frac{1}{2} \times 4\frac{1}{2}$ sections, but I have got over that. I believe the Langstroth frame to be long enough, and that broad frames for sections will soon be a thing of the past. I think Mr. Hutchinson would say so too, if he ever used the Heddon section rack. It seems to me there is unnecessary wood and work about the broad frame system, and it is not nearly so easy to manipulate, as the rack above mentioned. We must come down to a point where there is only the necessary handling, if we want to turn those silver-lined clouds to a golden hue.

I have used a deeper and shorter frame before I took to the Langstroth; and to take a deeper one now would make me feel as if I was going backwards. I will here quote two lines out of "Langstroth on the Honey-bee," page 330: "The deeper the frame the more difficult it is to make them hang true on the rabbets, and the greater the difficulty of handling them without crushing the bees or breaking the combs."

Let every beginner make a note of this, for it is one of the points on which successful bee-culture rest, and one that troubled me ever since I saw the first movable frame, until the joyous news came of the wiring process; whoever the inventor is, he will always have my heart-felt thanks.

It stands to reason that we ought not to play leap-frog with our frames of bees and brood, if we have not got perfectly straight combs. I can tolerate no others in my apiary, and to get them so, they must be wired. But to return to the subject, I think there is room in the Langstroth hive for a frame two-eighths of an inch longer if any one wished to produce comb honey in that way. I should like to say a good deal more on the subject, but I am a very slow writer, besides I do not wish to take up too much valuable space. I think Mr. Hurst will find a very good answer, in the above, to his question in the last number of the BEE JOURNAL.

Manistee, Mich., July 6, 1883.

For the American Bee Journal.

Do Queens Mate More than Once?

S. HINMAN.

Is it regarded as an established fact that queen bees mate with the drones only once? Prof. A. J. Cook says, on page 310 of the BEE JOURNAL, that Mr. Alley is surely right in saying that queens mate only once. My experience with queens leads me to think that there are exceptions to the rule.

In 1880, I commenced to Italianize my apiary by purchasing an Italian queen from D. A. Jones. I introduced her successfully to a queenless colony of black bees on July 7; on Aug. 27, I succeeded in introducing a young queen, reared from the brood of the Jones queen in another colony of black bees. This hive I looked into very often, in order to see how the daughter of the Jones queen was coming on. In due time, the eggs, larvae and sealed brood made their appearance in the hive. On Sept. 24, as I looked into the hive, I saw most unmistakable signs on the queen of having mated with a drone that very day. At the same time there were eggs and brood in all stages, and sealed brood on the same frame with the queen. I think there can be no doubt about its being the same queen that I introduced on Aug. 27, as there was no unfertilized Italian queen in my yard, that could have usurped her place in the hive, and outside of my yard there was not an Italian colony within five miles of my place.

Dundonald, Ont.

Prairie Farmer.

Extracting Honey from the Combs.

MRS. L. HARRISON.

Many more pounds of honey can be secured by the free use of an extractor than if comb honey is the object. Especially is this true when there is only now and then a good day. An extractor is a desideratum in every apiary, although we prefer to produce comb honey. Many colonies that would not produce a pound of comb honey would yield considerable extracted.

There has been considerable discussion among bee-keepers as to the proper time when honey should be "swung." Some claim that it should be sealed, and well ripened, while others aver that it saves time and honey to extract before sealing, and that the honey is just as good, provided it is kept in a hot, dry atmosphere until it has evaporated to the proper consistency. A prominent apiarist of this State, who runs his bees for extracted honey only, tiers up his hives until the season closes before extracting.

This extracting business is not always smooth sailing. A lady once told the writer that a neighboring bee-keeper brought his machine to their house and extracted their honey. When he was through, everything in the house was sticky; the kitchen floor was covered with wax and propolis, and the bees cross as hornets; when the honey was brought in, they "came also." The key-holes in the doors had to be stopped, and when the bees found they could not enter, they hung in a big cluster from the door-knobs. She emphatically declared that she had enough of it to last her her lifetime. "Why, if I picked up the dish rag there were bees on it, and I got stung, or if I touched the handle of the dipper or the broom, it was the same thing. Whew! But the funniest part of it was when my old man drew on his books in the morning the day after extracting. He is always complaining of the rheumatism, and being so stiff that he can hardly move; but when his foot went down into that boot, he jumped clear over a chair with a yell like an 'Injun.' You see the bees had clustered inside, near the top, and, as he pulled it on, he brushed them down into it, and, as they got pinched, they stung lively."

The extracting should be done in a building by itself, or in a tent inaccessible to the bees. The building should have a revolving window, so that the bees inside could be turned outside. The tools necessary are uncapping knives, an extractor, and an uncapping can. This can has a wire strainer part way down, and is a great convenience, for the honey drains through into the can below, which is drawn off through a gate. Some bee-keepers have a box with folding covers, which has two handles or shafts, before and behind, so that it can be borne by two persons in carrying in the honey to be extracted. This box is filled with empty comb and carried to a hive, when the bees are driven from the

combs with smoke from a bellows smoker, and the remainder brushed off with a feather, or asparagus tops, as they are taken out, and their places filled with empty comb. Others have a similar box for carrying combs, fitted on to a wheelbarrow, and those who extract on a small scale have a tin bucket with a cover, suitable for carrying 5 Langstroth frames.

A very sharp knife is necessary to remove the cappings so that the comb may be marred as little as possible. Honey can be extracted from combs containing brood, but it is seldom done. If the brood is uncapped, the machine has to be turned gently, or it will be thrown out. We do not want "grub juice" in our honey, so we let these combs alone. It is not necessary to strain the honey unless the operator desires it, though we always do, as all bits of comb rise to the top.

When white clover honey is extracted neatly and kept by itself, it is one of the purest sweets known. It is one of the best known remedies for coughs and colds—a boon for consumption and persons of weak digestion. When Mrs. L. L. Langstroth was thought to be dying with consumption, she commenced taking pure honey, a teaspoonful at a time, as often as possible. She recovered and lived 10 years, dying of some other disease. "Eat thou honey, because it is good."

Peoria, Ill.

For the American Bee Journal.

'Bee-Moth, its Depredations.

THOMAS BALCOMB.

There seems to be a considerable amount unsettled in regard to the theory of the bee-moth. I have noticed more than once many conflicting theories; notwithstanding the "so-called" pest, is but a small enemy to the advanced apiarist, yet it is as well that something more definite should be arrived at. I find that a vast number entertain the idea that the moth must enter the hive and deposit its eggs over the combs to propagate its species. Others think the moth lays its eggs on and around the alighting board; and many, with myself, think that the bees unconsciously carry the eggs into the hive, while gathering the pollen from the various plants.

I find much difference of opinion as to what the moth or worm wholly subsists on. Dr. Howard, in the Texas Bee-Keepers' Convention, said that the so-called bee-moth subsisted "wholly" upon honey comb, as constructed by the bees; that comb foundation made from pure wax was not attacked; that comb constructed from such, was only infested for the sake of the additional comb; he said that Judge Andrews called his attention to this a year ago, in a remark that the moth larvae cannot subsist upon pure beeswax.

Now, I certainly beg to differ from these gentlemen's views upon the subject; for I am fully convinced that the moth and its worm do subsist on substances other than beeswax.

I have noticed that the moth seems more plentiful in the fall of the year, particularly if it has been wet and sultry weather. It does not seem feasible that this super-abundance of the moth could have had their beginning inside of a bee hive, and wholly upon "honey comb." I think (and Dr. Howard's statements partly bear me out) that the moth eggs are not only deposited in the cells with the pollen, but the eggs are "worked up" by the bees in manipulating the wax for cell building. That is the reason why the natural comb is more infested by them.

I presume Judge Andrews had reference to pure beeswax that had been "melted down," when stating that the moth larvae could not subsist on pure beeswax. But I have more than once found that, to a limited extent, the moth grub will even subsist on pure melted wax. I think the small square I have sent you, Mr. Editor, for examination, is as pure as wax can be, yet you see it is partly eaten up. I have had dark (melted) wax badly eaten when kept with pieces of old comb, and neglected.

Mr. M. D. Davis, at the same convention, asked if these worms could subsist upon bee bread. My experience has been that the worms mostly originate in the pollen. I find after consuming the pollen, they then attack the wax. The piece of comb that I have sent for examination was drawn out, last year, from moulded foundation; a few bees were reared on one side, as you perceive. This year I put the comb into a hive and the bees commenced putting in pollen where the brood had been; but, having to double up some, I took out the comb and put it with some others, in an empty hive, to experiment with, and the result is that in a few days the worms have hatched out in that freshly-deposited pollen, and they are subsisting "wholly" upon that, but will commence on the comb whenever the pollen is consumed.

Whether the worms, when in hives, attack the bee larvae, I cannot positively say, but I believe that they will even subsist and thrive on a diet partly of bee larvae. For, last year, I unfortunately had to make some experiments that were rather costly. I had let fall into a shapeless mass two frames of solid brood (excepting a little honey and pollen); they had just been drawn out on moulded foundation. I, therefore, put them into a clean coal-oil can, securely tying cloths over the top, so that no small insects, much less a bee moth, could enter, but in a few days I could detect the worm, and watched their gradual progress, but in less than two months it was one mass of moth worms and webs.

Now, in the first place, the combs were quite new and had their first "batch" of brood; they came from the centre of a strong colony of Italians, where I know that neither moth worm or anything else would be tolerated, but all was entirely eaten up, and I know, without a doubt, that no moth ever touched those combs. Therefore, I have long ago been

forced to believe that comb and bees are seldom destroyed by the moth itself entering the hive; but that the eggs are deposited in the honey and pollen-producing plants and flowers, and are carried in by the bees themselves.

Furthermore, I fully believe that the moth will thrive and multiply on substances and in places other than the wax, and the home of the honey-bee. I hope for the benefit of those that are in such dread of the moth worm, that my brother bee-keepers will not let this subject drop, for I think it quite essential that we should have a thorough knowledge of the enemies of the honey-bee, as well as of the industrious little fellows themselves.

Luling, Texas.

[The cake of wax and piece of comb mentioned by Mr. Balcomb bear unmistakable evidence of being pure wax, and yet it is infested with the moth and partly eaten up.—ED.]

Read before the Texas Convention.

Different Races of Honey Bees.

W. K. MARSHALL.

The modern improvements in the management of the honey-bee has led to the inquiry whether the bee itself cannot be improved. Hence, we have been looking after an improved or superior race of bees.

Every species of the honey-bee may probably be embraced in two general classes: the yellow and the black bee. The different varieties are probably crosses of these two races. It is generally supposed that there are two varieties of the black bee; a vicious little fellow, but a good worker, and a large light-colored bee. I have never been able to see the reason for this distinction, and have thought that the difference was owing to the management and other circumstances. I have found that the larger lighter-colored bee produced the most honey, even before aided with the modern improvements. I think the black bees are all of the same race, and not much difference in their temper or honey-producing qualities.

The yellow bee appears to be a distinct species, both from its marking and temperament. It probably originated in Egypt, and spread from there to the Holy Land. The Egyptian, and bees from all the surrounding regions, are so nearly the same in markings and temperament as to point to them as the same race; climate and method of management have made the difference in their habits and appearance. The Italian bee I consider an importation from the bee of Palestine. Their markings are nearly alike; their habits and temperament are the result of climate and management. Of all the different races of bees, already subjected to our improved modes of management, I consider the Italian the most desirable. I have found the Holy Land and Cyprian bees prolific and good

workers, but cross, easily disturbed, nervous and hard to manage. For practical purposes, at least for the present, I would not advise an extensive cultivation of them. The light-colored Italians, with three yellow bands, clearly marked, are certainly the purer stock. The dark-colored Italians with the yellow bands narrower and not so clearly marked, undoubtedly have been tainted with the black blood. This probably comes from contact with the German bee. The question whether this taint of black blood has not produced a superior bee for practical purposes is still an open question. My experience with the dark-colored Italian bees, gave me a very high opinion of their merits. I had a dark-colored imported queen, whose progeny were the most docile and the best workers I ever had. They were certainly not pure, for while they generally were all marked with the three bands, occasionally there was among them a sport, pointing look to the black blood. Undoubtedly the light-colored clearly-marked three-banded Italians are the pure stock, and the ones we should breed from. If a tincture of black blood is desirable, it can easily be obtained.

As to the question which is the best bee for practical purposes, I answer, so far as has yet been demonstrated, the Italian. They may probably be improved, and "the coming bee" may not yet be developed. Undoubtedly the bee, to some extent at least, is subject to the same laws which govern the whole animal world. By selecting the higher grades, and breeding up, we may reach a degree of perfection not yet obtained.

I would recommend the light-colored bee to breed from, until "the coming bee" has arrived, and when a greater degree of perfection has been reached, we can then take the higher grade and keep it up to the degree of perfection already obtained.

As the question is, Which will pay best, this or that, and all things considered? I can make the Italian pay best. I select it in preference to any already in the field. Nor have I yet seen any improvements which very materially beats the original Italian. I think I have seen home-bred queens which fully equaled any of the imported, but I have never seen any mingling of blood, thence I am very much disposed to stick to the pure Italian, unadulterated.

Marshall, Texas.

For the American Bee Journal.

Securing Straight Combs.

C. HARROLD.

In answer to the inquiry of J. Hurst, on page 338 of the BEE JOURNAL, I would say: Take a long-bladed knife and pass it down between two of the outside combs, as best you can, removing one comb; this gives you room. Now if the next frame has a comb partially extending across 3 or 4 others, gently pass the knife between the comb and bottom bars, then along

up the end, to the top bars, then back to the second frame again, holding the comb up with the hand; now press the comb straight, and if it is too long for the frame, pass the knife through the comb, leaving it long enough for the frame; press it in the frame, and fasten it to the top bar by pressing it with the thumb. If the comb contains honey, cut out the ill-shaped end and extract it; then place it in the frame as before described. The knife should be wet in clean soap-suds directly before using each time, and so continue until the combs are all straight.

First plumb your hive (it does no harm to pitch them a little to the front, so that the bees may drag out the cappings while at work). If foundation is not used, you can take small bits of comb, and wax them to the top bar with the thumb, 3 or 4 bits on every frame. Whenever the bees commence building their combs crooked, straighten them and change the frames, so that the bees are compelled to build it straight. You can probably turn the frame, end for end, with less work, and it may answer all purposes. I think, if you turn your frames every 3 of 4 days, you will have no trouble.

Onawa, Iowa.

Translated from Bienenfreund by A. R. Kohnke.

Dzierzon's Theory of Wintering Bees.

N. N.

At last Dr. Dzierzon has written an extensive article in defence of his theory that "bees during their winter rest could not be housed too warm, and if it were possible, they would be much better off in a temperature ranging from 75 to 95 degrees F., than anything below that."

All bee-keepers are agreed that success in wintering is the foundation of success in bee-keeping, and a further discussion of this question would advance the interest in bee-keeping largely, by showing that well and warmly-protected bees should winter better, and also to show the fallacy of those bee-keepers who, contrary to this theory, have found it more advantageous to their bees and themselves to give them less protective and more ventilation.

It may be quite interesting to hear of the experience of a bee-keeper from the North (58 lat.) who casts his vote in favor of "cold" wintering (little protection), and why the reasons Dr. Dzierzon advances to support his theory, have not been acceptable to him. A "cold" wintering would certainly show its disadvantages, if it were such, in a cold climate, much colder than Germany. The writer of this article has now for 4 years wintered his bees with little protection from cold (which last winter lasted 6½ months), and never lost a single colony. No dysentery, no moldy combs, few dead bees, and the excrements and other dirt on the bottom board as dry as powder. Most, or at least very many of the bee-keepers in Germany follow the teaching of their master, and, according to his theory,

have their bees well housed and protected. In spite of this I noticed:

1. Poor wintering in Germany and other countries during hard winters.

2. Continual complaints about poor wintering, in bee papers.

3. The complaint that colonies in frame hives winter much poorer than those in box hives, gums, or straw hives, contrary to Krasiecki's assertion of the opposite being the fact.

4. That even Dr. Dzierzon and Berlepsch corroborated them as being disadvantages of the frame hive.

5. That the writer of this article has had the very best of success by adopting the opposite course.

6. That the bees in the Northern and Eastern part of Russia, being confined 8 months to their hives winter very successfully.

7. Hilbert's opinion, that "though we owe Berlepsch very much, his wintering theory has caused bee-keepers great losses," especially by two of his doctrines, that 1st, bees need very little air during wintering, and 2nd, should "be most carefully guarded against ventilation."

And finally, 8th, on seeing bees wintered in his neighborhood by a lady bee-keeper, after the old style, in gums standing in the garden in a very exposed position and expressing his surprise about it, she smilingly replied: "These animals are not afraid of any cold." The walls of these gums are no thicker than 1½ inches. She only once lost one colony on account of cold, because the walls of the gum were very thin. It has also been observed that bees packed or housed always winter poorly, and the knowing ones never protect them in this country.

Dr. Dzierzon uses repeatedly the expression: "A bee is no ice bear (white bear)." Certainly not; for within the Arctic zone we find no bees; a single bee is a helpless, delicate creature. But a colony of bees is like a bear, and where a bear winters, there a colony of bees will. This is proven many times over, but it requires a strong colony, and only strong colonies should be considered in discussing theory of wintering. Weak colonies are diseased colonies, and must necessarily be treated as a patient, wrapped up well in cotton, and belong more appropriately to apical pathology than in the wintering question.

It seems to me that Dr. Dzierzon reasons in a question, requiring practical experience, from assumed but not proven facts. This reasoning from such has led him into error, as is proven by the experience of many other bee-keepers, whose observation corroborate the contrary of his assertions. The writer has wintered his bees successfully without any protection, with two openings in the hive; one at the bottom and another half way up the hive, and that in a temperature of from 30° to 40° below zero, and the bees having wholly been confined to their hives in different years for 6, 7 and 8 months. It would be an easy matter for any bee-keeper to try to winter a colony in a temperature of say 70° or 80° by putting an

observation hive in a window in his room, where the temperature does not fall below the heat required by Dr. Dzierzon. It would be interesting to know his verdict in this question; by such decisive experiments the science of bee-keeping would gain largely.

Remark by the Translator.—I obtained, this spring, a colony of bees from a frame in an old rotten box-hive; as it had no legs, which were, perhaps, rotten some years ago, it was propped up and nailed to two posts, about one foot from the ground; the bottom board was entirely gone, exposing the combs to view. On top were two open inch holes not at all covered; it had always wintered well; had stood there for many years, and swarmed occasionally, but never had it given any surplus honey. On transferring it to a Langstroth hive, I found plenty of bees and brood and two capped queen-cells.

For the American Bee Journal.

Wintering Bees.

JAMES HEDDON.

As an excuse for coming forward again with this old, old subject, I will say that it is not yet exhausted.

Loss in wintering is considered by many the arch enemy of the bee-keeper. I am just one year late or behind the time I expected with this article. In the fall of 1881, I prepared a large number of colonies in very many different ways, wishing to somewhat test the effects of different conditions upon the main cause of loss in wintering, namely dysentery. The open winter following, which gave the bees a chance to void every two or three weeks, which we all know to be a prevention or cure or both to the malady, prevented my experiments from teaching one any thing upon the subject.

Last fall I repeated my previous experimental packing for winter, and as you know, was favored by a winter long enough, and strong enough to satisfy the most enthusiastic truth-seeker. As I have much else to say, I will not go into a detailed description of my modes of wintering. I will give you my own deductions in as short a space as possible.

These experiments verified my former opinion that cold and confinement is not the main cause of dysentery. I do not remember the time when my bees were confined longer or subjected to longer extended low temperature than last winter. There has not been a time since I kept bees, except one winter when I had 33 colonies, that dysentery has not shown itself among the bees to a greater or less extent. One year I lost 60 colonies out of 73, another 45 out of 48, another year near two-thirds, another about three-fourths, and once or twice one-half. Once (with the 33 colonies above referred to) all came through in perfect order. If cold and confinement were the cause of dysentery (dysentery being the well known cause of our winter losses) of my 350 colo-

nies put into winter quarters last fall according to the above experience, I should not have had 5 colonies left alive. As it was I lost a little over 150 colonies out of 350. Many colonies came through in perfect condition.

My favorite experiment was made with 50 colonies, 45 of which came through in good condition with the exception of 3 or 4 which had fertile workers, being overlooked during my absence in the fall, caused by severe poisoning from breathing the odor of bees at that time of year. My own experiments are not alone in proving that cold and confinement are not the cause of dysentery, but only one of the necessary conditions; as a temperature above the freezing point is a necessary condition for yellow fever, though heat is not the cause of it. On page 218, of the current volume, Mr. D. L. Herrick, of Vermont, says that Mr. McKay wishes to know if any one can beat 130 days without a flight, and says he can. Says his bees had been confined 159 days, and the whole 21 colonies answered the roll call, all seeming in perfect condition on April 15.

Many reports like this can be found to back up my opinion. I have demonstrated to my own satisfaction that upward ventilation, downward ventilation, dry atmosphere, damp atmosphere, and many minor conditions only act for or against the great cause in a mild degree, and then much according to the condition of the bees. I am now perfectly satisfied, though I admit there is still room to be mistaken, that the cause of dysentery lies in the food eaten by the bees, and I firmly believe that what is known as "Heddon's pollen theory," gives the correct solution to the subject.

I will quote the following from a private letter from that able apiarist and careful student of nature, Mr. A. R. Kohnke, of Youngstown, O.: "There are only two substances in the hive for the bees to eat, namely honey and pollen. We know honey is a pure carbon sweet, at least practically so, and if eaten in small quantities by bees, is converted into carbonic acid and water, hence leaves no residue. But pollen contains a much larger per cent. of undigestible matter which has to be voided as feces; it must, therefore, be the pollen. That is what you say. It is pollen first and last. Now hold on; not so fast. During the winter the bees have nothing to do but to sit still and breathe, not breed. To breed, they need and must have pollen; but to breathe they need not. I want to know why they should eat pollen when they do not need it. An answer, a correct answer will bring us to a true and correct starting point. Could you bring about such a condition with bees as would force them to eat honey when they want pollen, or pollen when they want honey? Will bees of their own choice eat the one when they are in need of the other? You may, perhaps, say you do not know, but I rather think you do. Bees are not yet enough civilized to accept substitutes of one for the other, 'and make it do.' They do

not. They will not touch your pollen if they have honey or some other pure hydro carbon sweet within reach. If they have not, they eat not only the honey but the pollen also, of which a large part is covered with honey, and then the accumulation of feces begins. If at this stage the weather permits a flight, they will improve the chance and then move around to honey, and no dysentery will be visible, if not it is there."

It seems that this letter of Mr. Kohnke's is meant by him as a partial controversy with me, while the facts are, it precisely substantiates my favorite opinions and claims. I have said all along that bees unhesitatingly prefer honey if the quality is good, but do not eat pollen except when they are out of normal condition, by the honey being all eaten out of their immediate cluster, and the weather too disastrously cold for the bees to move. Or when breeding begins, I think the bees, in handling the pollen, swallow more or less of it, for some way or other breeding and dysentery keep company to a great extent.

Very many bee-keepers, who are now observing and experimenting somewhat regarding the pollen theory, are writing me that they believe it a correct one. Among them, Mr. Walter Harmer, of Manistee, Mich., writes as follows: "Two colonies came through all right; the only one that had dysentery, had an excess of pollen, and began to breed the earliest. Now, I wish to quote from a gentleman who has experimented, perhaps, more than any other living man upon this question, namely, the consumption of pollen as connected with dysentery. I refer to Dr. A. B. Mason, of Wagon Works, Ohio. In a letter under date of March 20, last, he writes as follows:

"I've just been reading the *Exchange* for February, and I notice Mr. Tennant's remarks on your pollen theory; he does not believe that pollen alone is the cause of dysentery, etc.; I had to laugh. A good many illustrations popped into my head, and the first that occurred was, that I would be laughed at too if I was to say that, when a man is hung for murder, the rope around his neck was not not the cause of his death—his getting his neck into the rope is the cause of death; so of course, pollen is not the cause, it is 'cold weather without purifying flights.' I wonder what do bees want 'purifying flights' for, if they do not eat impure food? I like to read occasionally what Mr. Cheshire says on page 277, of the *BEE JOURNAL* for June, 1879.

"As I wrote you, once before, I have wintered for 4 years without pollen, and without loss, but this winter I am experimenting, not for choice but necessity, and I am going to pay for it, too. Being partially paralyzed in my wrists, for several weeks last fall, I was unable to prepare all my colonies for winter without pollen. I put 77 colonies in the cellar (where I have wintered them 2 years without loss), last Nov. 18, in a pile, 13 hives long and 6 hives high, without any regard to their condition, only putting

the heaviest in stores at the bottom, having previously marked every one with pollen, and its location in the hive. Now for the result, so far. The colonies with pollen nearly all have dysentery, and those having the most pollen in the cluster, have it the worst. Perhaps you will say, how do you know this? Well, last week we had two days, nice and warm, and I took most of the colonies with dysentery out for examination and a flight, and found as above stated. All were clean inside, aside from dead bees; no daubed combs. I shall lose from 'spring dwindling.' You go 10 to 1 on the pollen theory (it is no longer theory with me), but I can beat you on that, for I say 100 to 1, and more too, in practice. You notice that nearly all who give directions for wintering say, 'plenty of good honey, or sugar surup;' why don't they say, 'and pollen,' if it is a good thing to have in winter. Some of my dysenteric colonies have eaten the honey and left the pollen, and show but slight signs of dysentery."

From all of the above, I form the following conclusions:

1. Dysentery is the cause of our winter losses, to which all other losses are "as water unto wine."

2. The consumption of bee bread, or perhaps floating pollen in the honey, during the period in which the bees cannot void the residue necessarily accumulating from it, is the cause of dysentery.

It now only remains to devise some off-hand practical method, not a complicated and cumbersome one, or one which subjects one to stings or robbing, with which to put up bees, in such shape for winter as will avoid the conditions which are productive of dysentery.

These points I am working at, and when it is all accomplished, it will be time to announce our success, and the "what and how" of it, when I have made such success positive and permanent.

Dowagiac, Mich.

Gleanings in Bee-Culture.

Observations on Several Topics.

L. L. LANGSTROTH.

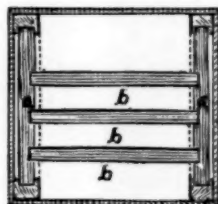
On page 55 of my work, you will see that I noticed in 1852 (as I see from my journal, and not 1854), drones reared under the same circumstances, so frequently referred to by some of your contributors. If the spermatie filaments of the drone remain sometime upon the surface of the egg, it is easy to conceive that the bees can remove them before they get into the micropyle of the egg, and hence drones instead of workers.

I wish to make some suggestions for the improvement of your standard chaff hive. You will remember, that years ago you asked for some practical way by which the frames could be inserted in the top story so that it would not be necessary to remove them all in order to get access to those below. I think that this can be done, not only without injury to the

main features of your hive, but with an increase of storage room above for frames or sections, besides other advantages.

Let me begin by saying that the doubling the case of the upper story is not only unnecessary for the protection of the bees below, but a positive injury to them, in the winter at least, by making that upper story like a damp cellar, and preventing it from drying out as it always does when made of a single thickness. This is one reason why the chaff cushions in your hive are so often damp, when in those I have made, they are comparatively dry. Let your top story be made of single thickness, and you not only get rid of this evil, but have much more storage room, either for frames or sections. Not only so, but you gain just the room which you need for easy instead of cramped access to the lower story. There is good room for your arms, for want of which, even when there are no frames to remove from the upper story, I always dislike to manipulate with your hives, especially if there is much work to be done.

Suppose, now, that you have all the room which would be gained by a single thickness of the walls of that story. I will show you how to arrange that space for frames, by a



simple plan which I used very successfully more than 15 years ago. My upper stories were made of only $\frac{1}{2}$ -inch stuff, and were strengthened by four posts, screwed one into each corner. These posts did not come up level with the sides of the cover, but were kept just enough below to allow frames to rest upon them (a, a), a little below the frames which sit from front to rear in the upper story (b, b, b). To sustain these frames, thin rails of hard wood, about 3 inches wide, with upper edges beveled to a sharp edge, were fastened up against the corner posts. The dotted lines represent these rails. You will see that the space in front and rear of the upper frames was utilized for holding storing frames, which also prevented the bees from building combs between the upper set of frames and the front and rear walls of the upper case of the top story. In the hives I used, in order not to use frames resting on the corners, of a different size from the standard Langstroth frame, the lower story was made to hold 13 frames, in a brood-chamber $18\frac{1}{2} \times 18\frac{1}{2}$, instead of $18\frac{1}{2} \times 14\frac{1}{2}$; but there will be no need of your chaff hives holding more than 10 below. By using smaller frames than the standard Langstroth, or dummies instead of frames, any standard Langstroth hive might be made on this plan.

If you wish to get access to any frame below you need only remove one or two above, moving some of the others nearer together, and there is nothing to prevent you from lifting out the lower frame, the rails on which the upper ones rest being no hindrance at all.

In this way you avoid all the heavy lifting, and other trouble incidental to the plan of the old two-storied hive, when you desire to get access to the lower story. If you still, for any reason, desire to have the upper walls of your chaff hive double, you can avail yourself of this plan, by making the air space very narrow; but in my opinion the hive is much better if single thickness above.

There was a time when I would have tried to patent this plan; but while I neither question the absolute right of any inventor to patent any original patentable device, nor the absolute wrong of parties who knowingly infringe upon valid patents, as a matter of plain business common sense, I would advise against patenting devices which can so easily be appropriated by others, as almost every thing connected with bee-culture must necessarily be. Where the manufacturing of any patented article requires costly buildings and machinery, and heavy capital, men will think long and often before they attempt to infringe upon it; for in their costly plant they give ample guarantees to those who will defend their rights. On the contrary, if a man could invent the most useful article that human brains ever devised, but which could be easily and cheaply made by almost any one; in order to reap any substantial benefit from his patent, he must expect, as the rule, to engage in almost endless litigation, and to spend one fortune in trying to make another. I hope that you will make at least one chaff hive on the plan I have suggested, and put it to the test of actual use in your apiary.

Last year, in this place, at this time, the weather was most propitious, and the fields and roadsides white with clover; but it had no perceptible fragrance, and the bees in my neighbors' apiaries had to be fed to be kept from starvation! This year, notwithstanding the frequent and drenching rains, our houses are sweet with the smell of clover; and in the intervals when they can work, the bees are accumulating stores at a great rate.

Oxford, O., June, 1883.

Local Convention Directory.

1883. Time and Place of Meeting.

Aug. 29.—Iowa Central, at Winterset Fair Grounds.
Z. G. Cooley, Sec. Pro tem.

Sept. 12-14.—Tri-State, at Toledo, Ohio.

Dr. A. B. Mason, Sec., Wagon Works, O.

Oct. 9, 10.—Northern Mich., at Sheridan, Mich.

O. R. Goodno, Sec., Carson City, Mich.

Oct. 17, 18.—Northwestern, at Chicago, Ill.

Thomas G. Newman, Sec.

Oct.—Northern Ohio, at Norfolk, O.

S. F. Newman, Sec.

Dec. 5-6, Michigan State, at Flint.

H. D. Cutting, Sec., Clinton, Mich.

In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

What and How.

ANSWERS BY

James Heddon, Dowagiac, Mich

Comb Production.

Will Mr. Jas. Heddon please tell us if it will pay to feed extracted honey, costing 10 or 11 cents per pound to get comb, to sell at 20 cents? Our honey season is over till fall; if this plan will pay, I can keep my bees at work during honey dearth.

D. W. BELLEMEY.

Vienna, Ill., July 8, 1883.

ANSWER.—A few say that it will. Very many say they have found that it will not, and have paid for the lesson. If you will try it this season, I will venture to say you will be found among those who fail to make it practical. I have not believed it practical, hence, have not tried the experiment.

Transferring.

In answer to Silas R., on Transferring, on page 315, Mr. Heddon says: "We practice transferring either on the old system or the new." Please give us both systems in the next number of the JOURNAL, and oblige several subscribers who wish to know for our own benefit. Give us light on this subject.

D. F. MARSH.

South Bosque, Tex., June 27, 1883.

ANSWER.—I will have an article on Transferring next week, in which I will give and compare both systems.

What is the Cause of It?

Please answer these questions in "What and How" department:

1. When a virgin queen leads a swarm, does she mate with the drone while swarming?

2. What is the cause of bees, where they are on the outside front of hive, having a back-and-forth motion, heads downward, mandibles against the hive, like as if they were rubbing them against the hive?

3. When I open a hive and am lifting out frames, on some frames several bees will begin to shake themselves like as if they were trying to shake loose from their legs—what is the cause? J. A. P. FANCHER—34.

Fancher's Mills, Tenn., July 9, 1883.

ANSWERS.—1. No; such is not the rule, though I do not know that such might not happen under some conditions. As a rule, the age of the queen forbids.

2. I once found out the cause of this see-saw movement, but have forgotten it, and who told me, as it is not radically connected with our success or failure.

3. I have been told that this shaking motion is to remove particles of pollen that still adhere to the legs, but I

have always been too busy with the dollar and cent points of the business, to stop and carefully look into these unimportant matters. They are of most importance to the apicultural entomologist, and I presume Prof. Cook can answer these questions easily and satisfactorily.

SELECTIONS FROM OUR LETTER BOX

Horsemint a Failure.

Our main honey plant, the horse-mint, failed to yield honey this year, on the account of drouth. Last year it beat anything I ever saw; my bees filled their hives in 3 weeks; it bloomed about 8 weeks, yielding all the time. I have to feed some of my bees now, to keep up breeding. For the fall plant, we have the smart weed; I notice thousands of it springing up all around the lakes, and it never fails to yield honey. I will now name some of the Texas honey plants: First, fruit bloom, then willow, yupon, rattan, persimmon, hoarhound, horsemint, wild ivy, elder, dog fennel, wild sage, smart weed, native cotton, and a hundred other different varieties which yield more or less. Please tell me how to make winter feed, and how much it will take to winter a colony.

W. S. DOUGLASS.

Lexington, Tex., June 28, 1883.

[For feeding in fall for winter stores, 3 pounds of coffee A sugar and one pint of boiling water, simmer five minutes. Feed this inside the hive with a division board feeder, or in a tin can with a coarse cloth tied over it, and inverted on the frames. For fall feeding, estimate the amount required, and give it as fast as the bees can store it in the combs. For winter feeding, use four parts coffee A sugar and one part water; simmer till it becomes quite hard on being cooled, mould into frames of one inch thickness, and lay it on top of the frames, using sticks underneath one-half inch square; or mould it in brood frames, tie hemp twine around to hold it in place, and put it in the center of the brood chamber. Each colony should have 30 pounds of good honey for winter stores, in the North, but in Texas, it needs much less.—ED.]

Lots of Honey.

I have just arrived home from San Antonio, Texas. Bees are doing nothing there at present; the weather is so very dry. Will return there again in the fall. Bees are doing finely here, swarming right along, laying up lots of honey.

A. C. BAILEY.

Brooklyn, Iowa, July 9, 1883.

Bees Doing First Rate.

I am building a new bee house 16x20 and 16 feet high. I am going more extensive in the bee business. Bees are doing first rate. The linden has not commenced to bloom yet, in my locality. I had a small swarm queenless, on the first of June. I gave it two queen-cells; one of the queens hatched, got fertilized and laid eggs in worker comb in three days; all this time the other queen was not allowed to hatch, and the eighth day after the first queen hatched, they swarmed.

REESE POWELL.

Mineral Point, Wis., July 10, 1883.

Sourwood Honey.

This season I have been trying Prof. A. J. Cook's plan for the prevention of increase, by putting swarms into colonies that had swarmed a few days previously, giving supers filled with foundation, after destroying all queen cells, and they invariably swarmed again in from 10 to 13 days, but now they have stopped since July 5. Sourwood began to bloom on June 26, and is now booming; the honey is very thin—clear as crystal, and, when fully ripened and thick (which takes till about Sept. 1), it is, to my taste, the finest honey of any. It has the most delicate flavor, never cloying the appetite like some honey does. After ripening in the hive, it turns to a pale yellow and is very thick. The sourwood will continue in blossom till the last of July. Bees do not gather honey as rapidly from it as they do from poplar, but the sourwood holds its own longer, and we get more surplus from sourwood, when the season is favorable, the bees being always strong when it is in blossom. Our ridges here are covered with it, not exclusively, but mixed among the oaks and other trees.

J. A. P. FANCHER.

Fancher's Mills, Tenn., July 9, 1883.

Mistaken Economy.

With all respect to Mr. Doolittle, I would say that he gave, sometime ago, what looked well on paper, and I thought I had "struck it" when I read it, which was to save foundation by hiving bees on empty frames for a few days, then to add foundation. I have tried it, and found it mistaken economy, if foundation can be had. I have proved that bees often swarm without being able to produce much wax for 48 hours. Some of my bees did good work at once on foundation, by raising the cell walls without being idle or producing wax at the expense of honey. If bees hang out a few days and prepare for swarming, they will give much better results on empty frames. Next, when I saw my stock of foundation costing \$50, I began to wonder if it would pay. I used half sheets, to see if I could not sell some foundation. I guess not, for about 12 in the dozen were filled out with drone comb below the half sheets, especially if put in before swarming. No more half sheets on these premises. To get strong, well puffed out combs, keep the extractor away until all are well drawn. I let my bees swarm naturally, and put

them on full sheets of un-wired foundation (sometimes a pail full of bees), and have yet to see the first sheet to fall when put on as you recommend. This is the wettest summer known in this part, but we have a large crop of clover and thistles, also, I think, about 5,000 basswood blossoms to one last year; they may not be out till July 20. I am surprised at so much being said on wintering bees, and of those having cellars, giving reports as soon as they are carried out. How bees pull through the spring, after being cellared; this is the grand point. I kept my outside boxes on many colonies until June, and still had losses in the spring. But my neighbor has only a handful in one hive, out of 27 kept in a good cellar. They had not even started egg-laying when set out, and could not stand the spring dwindling, while mine will be doubled in a few days, by natural swarming, if we get a honey shower equal to the appearance of basswood. Your pamphlets on "Honey, as Food and Medicine," ought to be scattered lively. I think bee-keepers would consult their own interest to use them.

CHARLES MITCHELL.
Molesworth, Ont., July 9, 1883.

Honey a Failure in Alabama.

Last season was an entire failure, and the present one bids fair to be partly so. Poplar did not yield its usual quantity of honey this year, and it was nearly all used up in rearing brood, and putting the bees in good strength for work. About the 20th of June the linden commenced to open its bloom, but yielded very little honey until the last 10 days. We have not, as yet, taken off an average of 5 lbs. of honey per colony, while other years we would have taken 40 lbs. We may get a yield of late honey.

NELSON PERKINS.
Princeton, Ala., July 10, 1883.

Basswood Honey Next.

Bees are doing fairly this season, though they are slacking up now. Basswood will be in blossom in about a week, and then I am in hopes they will go ahead again. Last year there was no honey to speak of here, and a large proportion of the bees starved to death.

A. C. BALCH.
Kalamazoo, Mich., July 7, 1883.

Finest Honey Ever Seen.

Bees are booming here. Some of my first swarms have swarmed three times. I never saw such a bloom of white clover, and the honey is the finest I ever saw. Bees are very numerous here now, and the question is, what will be the result if this honey flow shall continue? Italian bees for me, every time.

J. G. NORTON.
Macomb, Ill., July 11, 1883.

Large Crop of Honey.

Those who have attended to their bees in southern Ohio, have had a large crop of honey this year.

J. S. HOFFMAN.
Madisonville, Ohio, July 10, 1883.

Drone Cells.

On page 347 Mr. Wood speaks of drone brood on worker foundation. I have never had but a trifle of that work, but now the bees are changing worker to drone cells in a few small places on some of our combs. We must, in justice, admit that all worker foundation will not *entirely* control the "where and when" of drone production; but with me it does it the first year, and controls more than nine-tenths of it ever after.

Dowagiac, Mich. JAMES HEDDON.

Honey Without Separators.

Mr. L. C. Whiting says, on page 320, present volume, that he had 700 pounds of honey stored in sections without the use of separators, and 100 pounds of the honey was so bulged that it could not be crated. Will Mr. Whiting please explain whether the sections were 2 inches instead of 1½ inches wide; also, were the sections placed in broad frames or in crate or rack?

GEO. H. DENMAN.
Pittsford, Mich., July 7, 1883.

An Excellent Market.

My bees were very weak in the spring, but now are strong, and are bringing in the honey fast, when it does not rain; it has rained a part of the day almost every day for 2 or 3 weeks. I have about 50 colonies, and they are swarming some, and getting ready for the linden, which will come here about July 25. I sell all the white honey I can get by the 100 pounds in bulk, for 15 cents per pound. This is as good a market as I want.

A. GRIFFES.
Mount Bridges, Ont., July 9, 1883.

Special Notices.

Articles for publication must be written on a separate piece of paper from items of business.

Bee Pasturage a Necessity.—We have just issued a new pamphlet giving our views on this important subject, with suggestions what to plant, and when and how. It is illustrated with 26 engravings, and will be sent postpaid to any address for 10 cents.

Preparation of Honey for the Market, including the production and care of both comb and extracted honey, instructions on the exhibition of bees and honey at Fairs, etc. This is a new 10 cent pamphlet, of 32 pages.

Do not send coins in a letter. It is dangerous and increases the postage unnecessarily. Always send postage stamps, for fractions of a dollar, and, if you can get them—one-cent stamps; if not, any denomination of postage stamps will do.

How to Create a Market for Honey.

We have now published another edition of the pamphlet on "Honey as Food and Medicine," with more new Recipes for Honey Medicines, all kinds of cooking in which honey is used, and healthful and pleasant beverages.

We have put the price *still lower*, to encourage bee-keepers to scatter them far and wide. Single copy 5 cents, postpaid; per dozen, 50 cents; per hundred, \$3.00. On orders of 100 or more, we print, if desired, on the cover-page, "Presented by," etc., (giving the name and address of the bee-keeper who scatters them). This alone will pay him for all his trouble and expense—enabling him to dispose of his honey at home, at a good profit. Try it, and you will be surprised.

Our Premiums for Clubs.

Any one sending us a club of two subscribers for 1 year, for the Weekly, with \$4, will be entitled to a copy of Bees and Honey, in cloth, postpaid.

For three subscribers, with \$6, we will send Cook's Manual, in paper, Emerson's Binder for the Weekly, or Apiary Register for 50 colonies.

For four subscribers, with \$8, we will send Cook's Manual in cloth, or Apiary Register for 100 colonies.

For five subscribers, with \$10, we will send the Apiary Register for 200 colonies, Quinby's New Bee-Keeping, Root's A B C of Bee Culture, or an extra copy of the Weekly BEE JOURNAL for one year.

To get any of the above premiums for the Monthly BEE JOURNAL send double the number of subscribers, and the same amount of money.

Examine the Date following your name on the wrapper label of this paper; it indicates the end of the month to which you have paid your subscription on the BEE JOURNAL.

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We wish to impress upon every one the necessity of being very specific, and carefully to state what they desire for the money sent. Also, if they live near one post office, and get their mail at another, be sure to give us the address we already have on our books.

